

## ABSTRACT OF THE DISCLOSURE

5 A fuel cell using a secondary alcohol such as 2-propanol as fuel is disclosed. The fuel is oxidized directly at the anode without any reforming. Such a direct secondary alcohol fuel cell (D2AFC) possesses a much higher performance than a direct methanol fuel cell, especially at current densities less than 200 mA/cm<sup>2</sup>. In addition, fuel loss due to crossover in a direct 2-propanol fuel cell (D2PFC) is less than one-sixth of that in a direct methanol fuel cell (DMFC).